

REMARKS/ARGUMENTS

Reconsideration of the present application, as amended, is respectfully requested.

The June 2, 2003 final Office Action and the Examiner's comments have been carefully considered. In response, claims are cancelled and added, and remarks are set forth below in a sincere effort to place the present application in form for allowance. The amendments are supported by the application as originally filed. Therefore, no new matter is added.

Inasmuch as the present amendment raises no new issues for consideration, and, in any event, places the present application in condition for allowance or in better condition for consideration on appeal, its entry under the provisions 37 CFR 1.116 is respectfully requested.

CLAIM OBJECTIONS

In the Office Action, claims 3 and 4 are objected to because of certain informalities. In response, claims 3 and 4 are cancelled thereby rendering the objection to claims 3 and 4 moot.

REJECTION UNDER 35 USC 112

In the Office Action claims 2-6 are rejected under the first paragraph of 35 USC 112 as failing to comply with the written description requirement. In addition, claim 4 is rejected under the second paragraph of 35 USC 112 as being indefinite for failing to particularly point and distinctly claim the subject matter which applicants regard as the invention. In response, claims 2-6 are cancelled thereby rendering the rejections under 35 USC 112 moot.

PRIOR ART REJECTIONS

In the Office Action claims 1-3, 5, 7, 12 and 14 are rejected under 35 USC 102(b) as being anticipated by USP 5,866,911 (Baer). Claim 4 is rejected under 35 USC 103 as being unpatentable over Baer in view of USP 5,252,834 (Lin). Claims 6, 13 and 15 are rejected under 35 USC 103 as being unpatentable over Baer in view of USP 5,523,573 (Hanninen et al.).

In response, claims 1-7 and 12-15 are cancelled thereby rendering the rejections under USC 102 and 35 USC 103 moot.

New claims 16-19 are added to the present application. Claims 16, which corresponds to Fig. 5, is directed to a laser

scanning microscope including a pulse laser unit (21) configured to oscillate a pulse laser beam to excite a sample, a scanning mirror (22) configured to scan the pulse laser beam, a photodetector (36) configured to detect light from the sample and output an analog detection signal, a sampling control circuit (33) which receives a pulse oscillation signal from the pulse laser unit and generates a trigger signal delayed by a predetermined time, a pulse generator (45) which receives the trigger signal and generates a plurality of sampling pulse signals for each trigger signal, an A/D converter (27) which converts the analog detection signal from the photodetector to digital data in synchronism with each of the sampling pulse signals, and a memory (29) which stores the digital data from the A/D converter.

Baer teach a scan optical system such as a confocal laser microscope wherein a beam of light is focused to a spot in a specimen to excite a fluorescent species or other excitable species located at the spot. The effective size of the excitation is made smaller than the size of the spot by providing a beam of light having a wavelength adapted to quench the excitation of the excitable species.

The microscope defined by new claim 16 has the following advantages. By delaying the start of sampling by a predetermined

time period, the peak of fluorescence is detected (the start of sampling is adjusted to coincide with fluorescence) and by generating two or more sampling pulses for each pulse of the pulse laser and detecting the intensity of fluorescence using each sampling pulse, changes in the intensity of fluorescence over time can be detected. Baer does not disclose, teach or suggest the advantages set forth above.

That is, the present claimed invention as defined by new claim 16 is patentable over Baer because Baer does not disclose, teach or suggest, inter alia, a laser scanning microscope including:

1. a sampling control circuit which receives a pulse oscillation from the pulse laser unit and generates a trigger signal delayed by a predetermined time; and/or
2. a pulse generator which receives the trigger signal and generates a plurality of sampling pulse signals for each trigger signal; and/or
3. an A/D converter which converts the analog detection signal provided by the photodetector to a digital signal in synchronism with each of the sampling pulse signals (see claim 16 lines 7-15).

The other cited references do not close the gap between the present claimed invention as defined by claim 16 and Baer.

Lin discloses two pulse generators (29, 30) in Fig. 1 thereof. However, according to Lin, pulse generator 29 adjusts the pulse width of the pulse signal from pulse generator 30. Lin does not disclose that pulse amplifier 29 generates two or more pulses (a group of pulses) for each input of one pulse like pulse generator 45 of the present claimed invention.

In view of the foregoing, claim 16 and claims 17-19 which are dependent thereon and further define and limit the invention defined by claim 16 are patentable over the cited references under 35 USC 102 as well as 35 USC 103.

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Entry of this Amendment under the provisions of 37 C.F.R. 1.116, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner disagrees with any of the foregoing, the Examiner is respectfully requested to point out where there is support for a contrary view.

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Amendment dated October 2, 2003
Reply to Office Action of June 2, 2003

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Robert P. Michal', written over the typed name.

Robert P. Michal
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